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10/563,285

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EXAMINER

WILLIS, RANDAL L

ART UNIT

PAPER NUMBER

2629

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/563,285	<b>Applicant(s)</b> KIDA ET AL.	
	<b>Examiner</b> RANDAL WILLIS	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This office action is in response to amendment in application 10/563285 filed December 7<sup>th</sup> 2009. Claims 1-6 are currently pending and have been examined.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 3 and 5 and their dependents are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

These claims include the limitation of "a second signal that is opposite said first signal" which is an unclear limitation, which could mean having opposite or inverted polarity or one having an "ON" signal and one having an "OFF" signal, etc. For the purpose of the rejection, opposite will be read upon being to turn ON/OFF the transistor it is connected to.

### ***Claim Rejections - 35 USC § 102***

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4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2, 5-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Edwards (6,498,438).

Apropos claim 1, Edwards teaches:

A method for operating a constant current circuit comprising,

after connecting a sampling capacitor (72, Fig. 8) connected between a gate and a source of a first transistor (capacitor 73 connected between gate of source transistor T4, Fig. 8) and a drain of the first transistor to a reference current source (T4 connected to current source 40, Fig. 8) and setting a voltage across the sampling capacitor to a voltage between the gate and the source produced while the first transistor is driven by a reference current of the reference current source (Col 8 line 60 through Col 9 lines 5),

cutting off the connection among the sampling capacitor, the first transistor and the reference current source, as well as connecting the drain of the first transistor to a driving target (Col 9 lines 1-10), and driving the driving target by a current of first the transistor due to the voltage between the gate and the source that is set in the sampling capacitor (Col 9 lines 1-10)

wherein said cutting off the connection comprises applying a first signal to a gate of a second transistor (Output enable applied to gate of T5 which is connected between the drain of T4 and the current source 40)

a second signal that is opposite said first signal (Col 8 lines 60-Col 9 line 5) to a gate of a third transistor connected between the gate and drain of the first transistor (Sample applied to gate of T3, which is between the gate and drain of T4).

Apropos claim 2, Edwards teaches:

further comprising repeating a period for setting the voltage across the sampling capacitor and a period for driving the driving target (Inherent in active matrix displays to repeat driving periods to display images).

Apropos claim 5, Edwards teaches:

A constant current circuit, comprising:

A transistor having a gate, a source, and a drain (T4, Fig. 10), the drain of the transistor being configured for selective connection to a reference current source (Connected to reference 40 through T2, Fig. 10); and

A sampling capacitor (72, Fig. 10) configured for selective connection between the gate and the source of the transistor (T3, Fig. 10), for setting a voltage across the sampling capacitor to a voltage between the gate and the source produced while the transistor is driven by a reference current of the reference current source (Col 9 lines 1-5),

Wherein the drain of the transistor is selectively connected to a driving target after setting said voltage across the sampling capacitor, for driving the driving target by a current of the transistor due to the voltage between the gate and the source that is set in the sampling capacitor (output enable T5, Fig. 10 selectively connects T4 to the output column load)

wherein said cutting off the connection comprises applying a first signal to a gate of a second transistor (Output enable applied to gate of T5 which is connected between the drain of T4 and the current source 40)

a second signal that is opposite said first signal (Col 8 lines 60-Col 9 line 5) to a gate of a third transistor connected between the gate and drain of the first transistor (Sample applied to gate of T3, which is between the gate and drain of T4).

Apropos claim 6, Edwards teaches:

Wherein a period for setting the voltage across the sampling capacitor and a period for driving the driving target are repeated (Inherent in active matrix displays to repeat driving periods to display images), the period for setting the voltage across the sampling capacitor being set as a period for pre-charge of a display section (Fig. 11 shows the capacitor is charged prior to the output enable being applied and can be considered a pre-charge period).

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6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 3-4 rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards in view of Yamazaki (2006/0267899).

Apropos claim 3, Edwards teaches:

A flat display device constructed so that a display section made of pixels arranged in a matrix form (Fig. 1), a vertical driving circuit for sequentially selecting the pixels of the display section through gate lines (16, Fig. 1), and a horizontal driving circuit for driving pixels selected through the gate lines (18, Fig. 1), by signal lines of the display section,

characterized in that:

the horizontal driving circuit comprises:

after connecting a sampling capacitor (72, Fig. 8) connected between a gate and a source of a transistor (capacitor 73 connected between gate of source of transistor T4, Fig. 8) and a drain of the transistor to a reference current source (T4 connected to current source 40, Fig. 8) and setting a voltage across the sampling capacitor to a voltage between the gate and the source produced while the transistor is driven by a reference current of the reference current source (Col 8 line 60 through Col 9 lines 5),

cutting off the connection among the sampling capacitor, the transistor and the reference current source, as well as connecting the drain of the transistor to a driving target (Col 9 lines 1-10), and driving the driving target by a current of the transistor due to the voltage between the gate and the source that is set in the sampling capacitor (Col 9 lines 1-10)

wherein said cutting off the connection comprises applying a first signal to a gate of a second transistor (Output enable applied to gate of T5 which is connected between the drain of T4 and the current source 40)

a second signal that is opposite said first signal (Col 8 lines 60-Col 9 line 5) to a gate of a third transistor connected between the gate and drain of the first transistor (Sample applied to gate of T3, which is between the gate and drain of T4).

However Edwards fails to explicitly teach:

a digital-to-analog conversion circuit for performing digital-to-analog conversion processing of gradation data indicative of gradations of the pixels; and

a buffer circuit for driving the signal lines by means of an output signal from the digital-to-analog conversion circuit;



the buffer circuit drives the signal lines by a source follower circuit formed by connecting a constant current circuit to a source of a transistor;

in the same field of flat panel displays, Yamazaki teaches a source driver circuit which contains a D/A converter and a buffer circuit to provide the data to the data lines ([0110]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the known method of having D/A converters and buffers in the data driver as taught by Yamazaki in the display of Edwards in order to provide steady analog signals to be able to charge the capacitor to the correct voltage for displaying an image.

Apropos claim 4, Edwards teaches:

The flat display device according to claim 3, wherein the constant current circuit is configured for repeating a period for setting the voltage across the sampling capacitor and a period for driving the driving target (Inherent in active matrix displays to repeat driving periods to display images), the period for setting the voltage across the sampling capacitor being set as a period for precharge of the display section (Fig. 9 shows capacitor is charged prior to the output being enabled which would drive the display pixel).

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RANDAL WILLIS whose telephone number is (571)270-1461. The examiner can normally be reached on Monday to Thursday, 8am to 5pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on 571-272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RLW

/Amr Awad/

Supervisory Patent Examiner, Art Unit 2629